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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/019,922	04/30/2002	Seppo Valli	7510.197USWO	5759

23552   7590   01/19/2006

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EXAMINER
LEE, RICHARD J

ART UNIT	PAPER NUMBER
2613	

DATE MAILED: 01/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 July 2005*.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-5* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

1.   Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

2.   The abstract of the disclosure is objected to because phrases which can be implied, such as "present invention" appearing at line 1; "the invention" appearing at line 2; and "the invention" appearing at line 5, respectively in the Abstract should be avoided. Correction is required. See MPEP § 608.01(b).

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4.   Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jung of record (6,061,401) in view of Kobayashi et al (US 2003/0131019 A1).

Jung discloses a method and apparatus for selectively encoding/decoding a video signal as shown in Figures 1-3, and substantially the same method and system for performing motion estimation of image blocks from a first image frame to a second image frame in video image compression, the first image frame including a search area having a plurality of image blocks and the second image frame including an image block to be coded (see column 3, lines 37-51),

performing motion estimation of image blocks on image frames in video image compression

using an associative memory including a directory memory having memory locations (i.e., as

provided by the error signal memory 210 of Figure 2, see column 4, lines 34-44) and an output

memory including a plurality of memory locations (i.e., output buffer, see column 5, lines 58-

63), each of the plurality of memory locations (i.e., addressable memory locations within output

buffer, see column 5, lines 58-61) corresponding to at least one memory location of the directory

memory (see column 4, lines 34-44, column 5, lines 58-63) as claimed in claims 1-5, comprising

substantially the same means of determining image block average values of locations of the

image blocks included in the search area corresponding to a location of the image block to be

coded by using a predetermined shift on the first image frame and of predetermined size (i.e.,

image block average values of locations of image blocks are determined by mean calculators

342, 344, 346, 348, and block formation units 332, 334, 336, 338 provide image blocks that are

included in the search area corresponding to a location of the image block coded by using a

predetermined shift on the image frame, see column 4, line 59 to column 5, line 63); means for

sorting the image blocks included in the search area based on the image block average values of

the image blocks (i.e., processing block determination unit 350 error blocks are selected in a

descending order of their mean values, thereby providing the sorting of the image blocks

included in the search area based on the image block average values (i.e., provided by 342, 344,

346, 348 of Figure 3) of the image blocks, see column 4, lines 34-44, column 5, lines 33-63);

determining a search area on a previous frame corresponding to the location of the image block

on the current frame, the search area including a plurality of image blocks, each of the plurality

of image blocks having a location on the previous frame, and arranging the plurality of image

blocks included in the search area in a predetermined order based on the image block average

values of the plurality of image blocks (see column 3, lines 41-51, column 5, lines 33-63);

means of searching for a variant best matching image block for the image block to be coded

among the image blocks included in the search area (i.e., best matching block represents the

variant best match image block, see column 3, lines 37-51); an associative memory device for

storing the image blocks included in the search area (see column 3, lines 37-51, column 4, lines

34-44, column 5, lines 33-63), the associative memory device including a directory memory

having memory locations (i.e., as provided by the error signal memory 210 of Figure 2, see

column 4, lines 34-44) and an output memory i.e., output buffer, see column 5, lines 58-63)

including memory locations corresponding with at least one memory location of the directory

memory, the directory memory storing the image block average values of the image blocks

included in the search area in an ascending or descending order (i.e., error signal memory 210

represents the directory memory storing the image block average values as determined by

elements 342, 344, 346, 348, of the image blocks included in the search area in a descending

order as provided by processing block determination unit 350, see column 3, lines 37-51, column

4, lines 34-44, column 5, lines 33-63), and the output memory (i.e., output buffer, see column 5,

lines 58-63) storing the locations of the image blocks, each memory location of the output

memory storing the location of an image block having an image block average value

corresponding with the image block average value stored in the corresponding memory location

of the directory memory; means for restricting a group of the image blocks in the search area

based on a mean error (see column 3, lines 37-51, column 5, lines 33-63); a predetermine area of

regular shape around the image block to be coded is used as the search area (see column 3, lines

37-51, column 5, lines 6-15); defining an area comprised of one or more objects moving quickly

between successive frames, and using the area in the search area (i.e., the search area within the

motion estimation provides block matching of video, which includes an area of one or more

objects moving quickly between successive frames, if the quick movement of objects is of

consideration in the motion estimation, see column 3, lines 37-51, column 5); and determining

the possible location areas of the image blocks by using a shift of one pixel, a half of a pixel or

other fractional shift (see column 3, lines 37-51, column 5, lines 16-32).

Jung does not particularly disclose, though, the followings:

(a) wherein the image block average value of the image bock to be coded is used as a key

word of the associative memory device as claimed in claims 1 and 5; and

(b) means for searching for a best match among the image blocks included in the

restricted group of image blocks by using a partial distance elimination method, and searching

for an image block best matching the image block to be coded among the plurality of image

blocks included in the search area using a partial distance elimination method as claimed in

claims 1 and 5.

Regarding (a), Kobayashi et al discloses an image processing apparatus as shown in

Figures 1, 25, and 28, and teaches the conventional use of key words within a memory device

that is searched for finding a target object image (see Figure 28, and sections [0159], [0160],

[0161]). Therefore, it would have been obvious to one of ordinary skill in the art, having the

Jung and Kobayashi et al references in front of him/her and the general knowledge of key word

searchings within memory devices, would have had no difficulty in providing the key word

search within the memory device of Kobayashi et al for the motion estimation system within

Jung to thereby use the image block average value of the image block to be coded as a key word of the associative memory for the same well known faster search of image data purposes as claimed.

Regarding (b), the Examiner takes Official Notice that the particular means for searching for a best match among the image blocks included in the restricted group of image blocks by using a partial distance elimination method, and searching for an image block best matching the image block to be coded among the plurality of image blocks included in the search area using a partial distance elimination method are all old and well recognized in the art. Therefore, it would have been obvious to one of ordinary skill in the art, having the Jung and Kobayashi et al references in front of him/her and the general knowledge of block match searching techniques in motion estimations, would have had no difficulty in providing the searching for an image block best matching the image block to be coded using the well recognized partial distance elimination method within the system of Jung and Kobayashi et al for the same well known motion estimation of video purposes as claimed.

5.   Due to the above new grounds of rejections, the Examiner wants to point out that only pertinent arguments form the amendment filed July 11, 2005 will now be addressed.

Regarding the applicant's arguments at pages 6-8 of the amendment filed July 11, 2005 concerning in general that "... Jung fails to disclose or suggest using an associative memory device to perform motion estimation. In particular, Jung does not disclose or suggest storing the image block average values of the plurality of image blocks in the memory locations of the directory memory of the associative memory device. While Jung does disclose an error signal memory ... Jung fails to disclose or suggest using the error signal memory for sorting the mean

values in any particular order ... Jung merely discloses utilizing the mean values for selecting which error blocks are to be processed further ...", the Examiner respectfully disagrees. It is submitted that the error signal memory 210 of Jung is representative of the associative memory device including a directory memory as claimed. Again, the error signal memory 210 of Jung provides substantially the same if not the same the directory memory for storing the image block average values as determined by elements 342, 344, 346, 348, of the image blocks included in the search area in a descending order as provided by processing block determination unit 350, as claimed (see column 3, lines 37-51, column 4, lines 34-44, column 5, lines 33-63).

Regarding the applicant's arguments at page 8 of he amendment filed July 11, 2005 concerning in general that Jung further fails to disclose or suggest searching for an image block using the partial distance elimination method, the Examiner wants to point out that Office Notice was taken for such features in the previous Office Action dated April 7, 2005, and has been maintained as shown in the above.

Regarding the applicant's arguments at page 9 of the amendment filed July 11, 2005 concerning claim 5, the Examiner wants to point out that such arguments have been addressed in the above.

6.   Applicant's amendment necessitated the new ground(s) of rejection presented in this

Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this

final action.

7.   Any inquiry concerning this communication or earlier communications from the
examiner should be directed to Richard Lee whose telephone number is (571) 272-7333. The
Examiner can normally be reached on Monday to Friday from 8:00 a.m. to 5:30 p.m, with
alternate Fridays off.
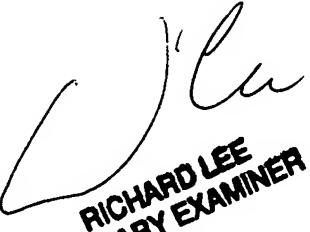
RICHARD LEE
PRIMARY EXAMINER

Richard Lee/rl

1/12/06